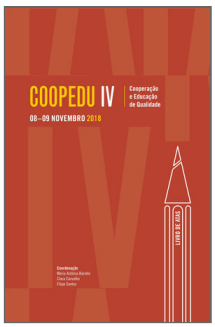

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Précis: Digital Access to Knowledge without Internet - The potential of non-proprietary models and adequate technology for African higher education and beyond[1].

Ulrich Schiefer

ABSTRACT

The rapid expansion of universities, from roughly about 600 in 1945 to more than 10 000 at present is due to the growing need of rapidly industrialising societies to produce technical-functional elites to manage their economies and societies.

Through industrial standards (“quality management”, “standardisation”, “cost reduction”, etc.) the Bologna process aims to train a globally mobile technological-functional elite. Higher education morphs into an industrial process for the commodification of qualified labour. The digitalisation, that is the internet-based transformation of proprietary business models of modern universities, has served, with mixed results, as a model for industrialising and non-industrialising societies.

The resurrection and expansion of colonial higher education institutions relied on massive international cooperation, be it through training of teachers, foreign teaching staff, financial and logistical support, etc. The expansion of the sector attracted private international operators to the originally strictly controlled state sector.

The rapid advance of three technologies in areas without reliable internet or electrical grids creates a new potential. The digitisation of information allows nearly free access to information (books and journals, etc.) even without libraries or internet, with a cost reduction by more than a factor of 1000. The nearly generalised access to smart-phones, tablets or computers permits the storage and access to the digitised information. Solar technology provides near cost-free energy.

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1 This is the précis of a communication presented at: IV COOPEDU - Congresso de Cooperação e Educação: “Cooperação e Educação de Qualidade”. Lisboa, 8 e 9 de Novembro de 2018. Panel: Trying to captivate African minds: The role of scientific education in elite transformation in non-industrialised post-war societies – international projections and national dynamics.

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Full university course materials, whole libraries, reference works (Wikipedia, etc.) can be distributed in digitised form through the internet or through digital media where internet is not available. African universities gain new opportunities of interacting with societies by providing structured and referenced quality information for the interested public, bridging the digital divide, broadening the recruitment base and provide information access for and beyond their student base.

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THE UNIVERSITY AS TRAINING GROUND FOR ELITES

In a global perspective, the university as an institution of higher education seems to be the most successful model, to provide scientific training for elites, although there have always been other institutions, such as religious institutions, military academies, and specialised institutions for public administration, to name just a few.

Academic models for the training of elites go back at least two and half millennia.

The axial age (Jaspers) provided in China, India, Persia, Judea, and Greece in the first millennium BCE new ways of thinking that, at least in part, found their institutional expression in new centres of learning. Plato's academy lasted, with some interruptions, nearly a thousand years, Chinese institutions of higher learning are as old and have trained imperial elites for millennia and produced phenomena such as the imperial examination systems.

THE UNIVERSITY AS A FACTORY – THE BOLOGNA PROCESS IN EURASIA

European universities have trained national and colonial elites for five centuries, modern European research universities that integrated research and teaching within an autonomous space free of political state intervention, were conceived about two centuries ago.

Their transformation into industrial-type, digitalised, scalable knowledge factories in Eurasia spans two decades. The "Bologna process" created a common space for Higher Education, with supposedly standardised levels of qualification and mutual recognition of diplomas between 48 countries. Basic tenets of this transformation are the economisation of education, with stress on cost reduction and quality improvement through industrial quality management and certification processes. The standardisation and certification of mass-produced technical-functional elites answers a need for globalising labour market where industrialisation requires highly qualified, exchangeable, employees.

Higher education morphs into an industrial process for the commodification of qualified labour. The digitalisation, that is the internet-ba-

sed transformation of proprietary business models of modern universities, has served, with mixed results, as a model for industrialising and non-industrialising societies.

At the same time, the quality management attributed to all scientists, as well as to each and every institution a simple number – produced by some complicated algorithms – that defines their position in the respective rankings. The ranking exercises received their cultural legitimacy from public sports tables, such as football and the like. The basic assumption of a global competition in an equally globalised market for education is, however, mostly fictitious.

What makes the university model such a success? A format of organisation for research and training that has functioned for more the five centuries, that has seen such a massive expansion, and that works in all political, cultural, societal climates and conditions? That works in democratic regimes as well in extremely repressive political systems. That is able to produce the most highly qualified scientists as well as the most repressive and corrupt elites.

There are, probably, a few common factors.

For one, there is a genuine need in all modern societies to train their elites, providing them with general as well as specific knowledge to manage societies. Secondly, the people running the universities have all been trained in universities themselves and have therefore adopted their functioning principles as well as their values. Thirdly, the teaching and learning processes are extremely flexible and adapt as well to open intellectual climates as to closely supervised and controlled milieus. So are the management structures, usually based on loosely coupled structures with a certain internal autonomy.

AFRICAN UNIVERSITIES AND EXTERNAL FORCES

Currently, African academic models are influenced by competing external projections of power and influence. There is the free-market, winner-takes-all, American model, with however reduced investments in Lusophone Africa. The influence seeking of the ex-metropolis still profits from certain advantages of a shared language and familiarity with the milieu but is running out of steam to support its intentions in the education sector with money, material or manpower. The European factory format of the Bologna University does not appear to be a particularly convincing model for societies that are not involved in massive industrialisation processes.

The general change from development cooperation to containment strategy of European powers changes the game also for cooperation in the education sector in African societies.

The new player in the game does have the financial and material power to project its influence and power also on to the education sys-

tems. Traditionally, education has a very high cultural value in Chinese society. The language and cultural divides are, however, massive and will take time to overcome. Therefore, the state controlled Chinese model which has been extremely successful in training a Chinese elite in a relatively short time, based on a very long successful history of national elite formation through higher education, will probably gain much influence over the next generations, as soon as the Chinese dedicated infrastructure which is currently being built up is in place.

The cultural translation problems will probably not be unsurmountable, as many African elites are losing their confidence into the democratic development model – which seems to be on the decline globally. This new influence from emerging hegemon will it not facilitate the task of defining a successful model for African universities that will be able to train elites that are able to overcome the challenges posed by heavily traumatised post-war societies.

LUSOPHONE AFRICAN UNIVERSITIES – UNIVERSITIES IN POST-WAR SOCIETIES

In the Lusophone African countries, the resurrection, transformation, and expansion of higher education institutions relied on massive international cooperation. The cold war efforts of the great power blocks competing for influence in elite formation were clearly visible, be it through training of teachers, financial and logistical support, granting of grants, foreign teaching staff, etc.

The new post-colonial elites rapidly adopted academic certification as an entry condition into certain positions within the public administration, the most important employer in all countries and tried in this way to boost academic training to the detriment of professional training. In a later stage, the rapid expansion of the sector also attracted private international operators to the originally strictly controlled state sector.

In societies where industrialisation is severely hampered and, as a general rule, limited to specific sectors (extractive industries, etc.) but where no factory-based wide ranging industrialisation provides a basis for the integration of the workforce "liberated" from the agrarian societies and, more or less forcefully, concentrated in cities and towns, (higher) education models copied from other realities are providing mixed results at best.

In these circumstances higher education encounters specific difficulties, namely the access to scientific knowledge, be it in the form of printed material, books or journals, etc. Good internet access is often limited to the capital and a few other urban centres and their institutions. University libraries are often insufficient, other public libraries are either non-existent or not up-to-date. The real costs of libraries are much higher than in industrialised countries with functional logistic chains. Good private libraries are rare. So a revolution

that is as least as important as the invention of the printing press by Gutenberg for the spread of knowledge, namely the digitisation of text, is not yet acknowledged in all its potential.

Even researchers and teaching staff have difficulties in accessing books, scientific journals, etc. Many have organised private informal networks to provide themselves with the necessary materials. These are costly and time-consuming to run.

The weak logistic chains make it very difficult to obtain books and other material from the global markets. So the digital divide is fairly serious. Numbers about internet access are to be treated with care, many users may have sporadic, weak and slow access which does not provide workable solutions.

So the open access to knowledge that the internet supposedly offers to everybody is in most realities rather restricted.

The closed models of the institutions of higher education do not encourage the distribution of access to scientific information outside their systems.

HOLES IN THE INTERNET

There is a general misunderstanding about the access to scientific information – in most cases the access is thought to be constraint by access to the internet. This internet trap is actively promoted by all interested parties that try to profit from the internet by hooking up as many users as possible and to provide as many potential users as possible with access to the internet.

This general shared idea that access to information is constrained through access to the net is however no longer valid.

Some movements that grow on the net and strive to make (scientific) information accessible to all, such as the open access movement, are still internet based, while others, such as the Wikipedia movement have made efforts to provide free access for everybody, even without internet access.

NEW TECHNICAL SOLUTIONS FOR OLD PROBLEMS

The rapid advance of several technologies has created a new potential for access to information, scientific and other, in geographical areas without reliable internet or electrical grids.

First, the digitisation of information, a necessary step for providing this type of content over the internet and for computers, etc., allows nearly free access to information (books and journals, etc.) even without libraries or internet, with a cost reduction by more than a factor of 1000. The non-proprietary approach of much content, be that legal, like in the

Wikipedia, etc. or in a legal grey zone (google books, etc.) can exclude costs nearly completely. The world wide open access movement will increase the share of freely accessible scientific material even further.

The reduction in space and weight is even more stunning. A factor of 1 000 000 is not uncommon. A library of 50 000 books fits easily onto a hard drive.

Second, the specific characteristics of digitized material provide the user with additional advantages over classical libraries. The available search functions greatly reduce cost and time to locate and access relevant information.

Third, the combined rapid technical innovation in the area of the end user technology has cut costs in an impressive way. The nearly generalised access to smart-phones, tablets or computers permits the storage and access to the digitised information.

Fourth, the innovation in solar technology provides near cost-free energy off-grid.

Fifth, the establishment of internet access points in all countries allows for the crucial links to provide the internet-based content for non--internet linked users that in many countries still vastly outnumber the internet users.

The digital libraries can be consulted by everyone with the end user technology, at any time, at any place, with no cost.

PROPRIETARY MODELS AND FREE INFORMATION

The combination of these technological advances allows us to rethink the information revolution as well as the role it may play in higher education, and the role higher institutions may play in this new possibilities for providing and sharing information not just for the staff and students, but for the population in general. While the need for classical libraries can and should not be denied, the digitisation of information allows for nearly cost-free access for which no maintenance of libraries is required, and neither space nor personnel has to be increased.

To give just a few examples:

Full or partial university course materials can be distributed in digitised form through the internet or through digital media where internet is not available. Digital libraries in the form of pen drives or sd-cards can be distributed through established channels, from professors to students, between students, through direct contact or through institutions, high schools, and so on.

African universities gain new opportunities of interacting with societies by providing structured and referenced quality information for the interested public, bridging the digital divide, broadening their recruitment base and provide information access for and beyond their student base. As a simple example: universities which admit students through

exams could distribute the study material widely to potential candidates and thus increase interest in their courses while providing their potential customers with a solid base for their studies.

To provide a short, and very incomplete, list with material that can be distributed off-line:

- Libraries, produced in different areas of knowledge
- Maps
- Reference works (Wikipedia, etc.)
- Handbooks and manuals
- Course material for specific university courses
- Course material for specific professional courses

The free distribution of scientific material in digitised form at first glance seems to contradict the proprietary model of most institutions of higher learning that allow access to their knowledge only through admission of students and against fees. There can be no doubt, however, that free access to information will be the future, be it online or offline. The question is, if the business model of institutions of higher learning will still be adequate when scientific information flows freely. The reduction of their model to certification by providing diplomas to future elites is not only questionable in itself, it is also a game most universities have already lost through the branding exercises of the select few universities that dominate the global market and have forced all competitors into the same race they can only lose, through rankings and other mechanisms.

In this winner-takes-all race, most African and many other universities have no chance to succeed. Should the universities not instead try to concentrate on training the elites for their countries and provide the conditions for people to acquire knowledge and to form the personalities their countries and humanity need – just as Plato had in mind, when he founded the academy from which we all still derive our name?